

**REMARKS**

Claims 23-44 remain pending and under current examination.

**Regarding the Office Action:**

In the Office Action,<sup>1</sup> the Examiner rejected claims 23-44 under 35 U.S.C. § 103(a) as being unpatentable over European Patent Application No. EP 1 263 155 A1 (“Turitsyn”).

Applicants traverse the rejection for the following reasons.

**Rejection of Claims 23-44 under 35 U.S.C. § 103(a):**

Applicants request reconsideration and withdrawal of the rejection of claims 23-44 under 35 U.S.C. § 103(a) as being unpatentable over Turitsyn. A *prima facie* case of obviousness has not been established.

To establish a *prima facie* case of obviousness, the prior art reference (separately or in combination) must teach or suggest all the claim limitations. See M.P.E.P. § 2142, 8th Ed., Rev. 5 (August 2006). “[I]n formulating a rejection under 35 U.S.C. § 103(a) based upon a combination of prior art elements, it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed.”

*USPTO Memorandum* from Margaret A. Focarino, Deputy Commissioner for Patent Operations, May 3, 2007, p. 2. “[T]he analysis supporting a rejection ... should be made explicit” and it is “important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements in the manner claimed.” *Id.* (citing *KSR Int’l Co. v. Teleflex, Inc.*, No. 04-1350 (U.S. Apr. 30, 2007)).

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<sup>1</sup> The Office Action contains statements characterizing the related art and the claims. Regardless of whether any such statements are specifically identified herein, Applicants decline to automatically subscribe to any statements in the Office Action.

A *prima facie* case of obviousness has not been established for at least the reason that the prior art, taken alone or in combination, fails to teach or suggest each and every element recited in independent claims 23 and 42-44. In addition, a *prima facie* case of obviousness has not been established because the Examiner has taken improper Official Notice or relied on a presumed inherency theory, and improperly relied on a case law citation. Finally, assuming for the sake of argument only, that a *prima facie* case of obviousness has been established (which Applicants do not concede), Applicants' specification provides evidence of unobvious or unexpected advantageous properties, which can rebut *prima facie* obviousness. See M.P.E.P. § 716.02(a).

Turitsyn is the only reference relied upon in the Office Action. The Examiner admitted that "Turitsyn et al. do not explicitly disclose a corresponding absolute value lower than or equal to 13ps<sup>2</sup>/Km or lower than 10 ps<sup>2</sup>/km or greater than 0.5ps<sup>2</sup>/km or greater than 1ps<sup>2</sup>/km." Office Action, p. 5. Thus, Turitsyn also does not teach or suggest at least Applicants' claimed "at least said first and third portions being associated to respective first order chromatic dispersions having, at the pre-established wavelength, a corresponding absolute value lower than or equal to 13 ps<sup>2</sup>/Km," as recited independent claim 23.

The Examiner instead makes an unsupported allegation that "the corresponding absolute values lower than or equal to 13 ps<sup>2</sup>/Km or lower than 10ps<sup>2</sup>/Km or greater than 0.5ps<sup>2</sup>/km or greater than 1 ps<sup>2</sup>/km *are considered to be obvious*." Office Action, p. 5, emphasis added. The Examiner offers *no evidence or support* of his obviousness allegation regarding Applicants' claimed "at least said first and third [optical waveguide] portions being associated to respective first order chromatic dispersions having, at the pre-established wavelength, a corresponding absolute value lower than or equal to 13 ps<sup>2</sup>/Km" (claim 23). Instead, the Examiner cites to *In re Boesch*. It appears that the Examiner has taken Official Notice that the claimed values "are

considered to be obvious” or that such values are, perhaps, inherent in Turitsyn (which would instead be under the purview of an anticipation rejection). Furthermore, as will be discussed in more detail below, the Examiner has made improper use of a case law citation.

First, Applicants challenge the Examiner’s presumed taking of Official Notice as being improperly presented. The Examiner’s general allegation that “the corresponding absolute values ... are considered to be obvious,” for example, is not sufficient to support taking of Official Notice regarding at least Applicants’ independent claim 23. “Official notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art *are capable of instant and unquestionable demonstration as being well-known.*” M.P.E.P. § 2144.03(A) (emphasis added).

Likewise,

[i]t would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of *instant and unquestionable demonstration as being well-known*. For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation to some reference work recognized as standard in the pertinent art. Id. (italics added).

Applicants therefore challenge the Examiner’s presumed taking of Official Notice as improper, as it is unsupported by documentary evidence, and, based on the applied references and knowledge available to one of ordinary skill in the art, is not capable of instant and *unquestionable demonstration as being well known*. Applicants will therefore “specifically point out the supposed errors in the examiner’s action, which would include stating why the noticed fact is not considered to be common knowledge or well-known in the art.” M.P.E.P. § 2144.03(C). So, “[i]f applicant adequately traverses the examiner’s assertion of official notice,

the examiner *must provide documentary evidence in the next Office action if the rejection is to be maintained.*” *Id.* (emphasis in original).

In contrast to Applicants’ claimed “at least said first and third portions being associated to respective first order chromatic dispersions having, at the pre-established wavelength, a corresponding absolute value lower than or equal to  $13 \text{ ps}^2/\text{Km}$ ” (claim 23), Turitsyn actually teaches dispersion values outside the claimed range. For example, Turitsyn teaches in Fig. 11 and related description that the fiber spans formed by fiber 12 (having positive dispersion equal to  $16.2 \text{ ps/nm/Km}$ ) and fiber 14 (having negative dispersion equal to  $-20 \text{ ps/nm/Km}$ ) are connected to an output of two successive amplifiers 16. Turitsyn does not at all discuss possible dispersion map configurations that may limit nonlinear effects. *See* Turitsyn, par. [0120]-[0130]. *See also* Applicants’ specification at page 6, lines 15-24.

Thus, Turitsyn does not provide any teaching or suggestion of the use of dispersion values “lower than or equal to  $13 \text{ ps}^2/\text{Km}$ ,” as required by independent claim 23. Indeed, Turitsyn is silent about any solution that could limit intrachannel nonlinear effects. Other documents discussed in the background section of Applicants’ specification at, for example, pages 2-6, clearly teach *increasing* the value of chromatic dispersion to reduce intrachannel nonlinear effects.

The Examiner’s unsupported “noticed fact” that “the corresponding absolute values lower than or equal to  $13 \text{ ps}^2/\text{Km}$  or lower than  $10 \text{ ps}^2/\text{Km}$  or greater than  $0.5 \text{ ps}^2/\text{km}$  or greater than  $1 \text{ ps}^2/\text{km}$  are considered to be obvious” (Office Action, p. 5) is therefore in error, and cannot be considered common knowledge or well-known in the art. Based on the reasoning just presented, the claimed “chromatic dispersions having, at the pre-established wavelength, a corresponding absolute value lower than or equal to  $13 \text{ ps}^2/\text{Km}$ ,” as recited, for example, in independent claim

23, cannot be capable of instant and *unquestionable* demonstration as being well known. Since Applicants have demonstrated the impropriety of the presumed Official Notice, the Examiner *must*, at minimum, *provide documentary evidence in the next Office action if the rejection is to be maintained*. See M.P.E.P. § 2144.03(C).

Second, to the extent that the Examiner may be alternatively relying on an “inherency” theory to support his allegation that “the corresponding absolute values ... are considered to be obvious” (Office Action, p. 5), the allegation is also without merit. For at least the reasoning presented above, the Examiner has not established that Turitsyn teaches each and every element of Applicants’ independent claim 23, either explicitly or under the principles of inherency. The Examiner has not presented any evidence, or sufficient factual basis, to demonstrate inherency, and the features the Examiner alleges are obvious are not inherently present in Turitsyn. If the Examiner asserts inherency, the Examiner must provide extrinsic evidence tending to show inherency. “The fact that a certain result or characteristic *may* occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic.” M.P.E.P. § 2112(IV), internal citations omitted (emphasis added). Thus,

[t]o establish inherency, *the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill*. Inherency, however, may not be established by probabilities or possibilities. *The mere fact that a certain thing may result from a given set of circumstances is not sufficient*. Id. (emphasis added)

In this case, the Examiner has not provided extrinsic evidence to establish that the missing claim elements are *necessarily* present in Turitsyn to satisfy all the elements of independent claim 23. Therefore, the Examiner’s presumed reliance on inherency is improper.

Third, the Examiner has also made improper use of a case law citation to *In re Boesch* in support of this rejection. *See* Office Action, p. 5. In a rejection, the Examiner may use the rationale of legal precedent established by prior case law, subject to the following considerations. “The examiner must apply the law consistently to each application after considering all the relevant facts. *If the facts in a prior legal decision are sufficiently similar to those in an application under examination*, the examiner may use the rationale used by the court.” M.P.E.P. § 2144 (emphasis added). It is impermissible for the Examiner to rely on this case as a short-cut means to attempt to establish a *prima facie* case of obviousness, without first establishing the elements of a *prima facie* case. In this case, the citation to the *In re Boesch* case is not applicable, at least because it is not factually similar to the present application.

The case cited by the Examiner concerns the obviousness of selecting parameters (pressure, temperature, etc.). The holding of *In re Boesch* is not applicable to Applicants’ claimed invention. The claims associated with *In re Boesch* were directed to a nickel base alloy having various chemical compositions. The court determined that the Appellant did not include evidence to overcome a *prima facie* case of obviousness established by the Examiner. The court reasoned that test analysis data associated with the claimed invention that was included in an affidavit did not show examples of claimed alloys showing the absence or presence of sigma, a deleterious phase in a metal after exposure to certain temperatures. The reasoning applied by the court is not applicable to the present claimed invention.

Thus, the Examiner has merely provided a conclusory statement and a case law citation, while failing to provide evidentiary support for his presumed taking of Official Notice, or that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. Accordingly, at least since the prior art fails to teach each and every element of the claims,

Applicants submit that the Examiner has failed to establish a *prima facie* case of obviousness. Specifically, the prior art does not teach at least the following element of independent claim 23: “at least said first and third [optical waveguide] portions being associated to respective first order chromatic dispersions having, at the pre-established wavelength, a corresponding absolute value lower than or equal to  $13 \text{ ps}^2/\text{Km}$ .”

Finally, Applicants note that “[e]vidence of unobvious or unexpected advantageous properties, such as superiority in a property the claimed compound shares with the prior art, can rebut *prima facie* obviousness.” M.P.E.P. § 716.02(a) (citing *In re Chupp*, 816 F.2d 643, 646, 2 USPQ2d 1437, 1439 (Fed. Cir. 1987) for the principle that showing a claimed invention was superior to the closest prior art in only one trait but similar in others was sufficient to overcome a rejection under 35 U.S.C. § 103.) Moreover, “[e]vidence of unexpected properties may be in the form of a direct or indirect comparison of the claimed invention with the closest prior art which is commensurate in scope with the claims.” M.P.E.P. § 716.02(a) (citing to *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980); *In re Blondel*, 499 F.2d 1311, 1317, 182 USPQ 294, 298 (CCPA 1974) and *In re Fouche*, 439 F.2d 1237, 1241-42, 169 USPQ 429, 433 (CCPA 1971)). Applicants submit that the application contains unexpected results sufficient to overcome a *prima facie* case of obviousness (which Applicants maintain has not been established).

For example, Applicants’ claimed “chromatic dispersions having, at the pre-established wavelength, a corresponding absolute value lower than or equal to  $13 \text{ ps}^2/\text{Km}$ ” (claim 23), is unexpected at least because it contradicts the known teachings, according to which the intrachannel nonlinear effects should decrease as chromatic dispersion increases. *See* Applicants’ specification at, for example, page 8, lines 1-5. In fact, Applicants’ simulations

evidence that a reduction in nonlinear effects takes place, for the optical communication line using Applicants' selected map, where the first fiber of each of the claimed spans has "chromatic dispersions having, at the pre-established wavelength, a corresponding absolute value lower than or equal to  $13 \text{ ps}^2/\text{Km}$ ," as recited, for example, in independent claim 23. *See also* Applicants' specification at, for example, page 8, lines 6-11.

Thus, Applicants' found that in order to limit intrachannel nonlinear effects, optical communication lines using a particular type of map (such as that having output spans having chromatic dispersions of opposite signs) are of particular interest. Applicants' simulations have shown the unexpected result that, for a reduction in nonlinear effects to take place, the optical communication line which uses the selected map has "chromatic dispersions having, at the pre-established wavelength, a corresponding absolute value lower than or equal to  $13 \text{ ps}^2/\text{Km}$ " (claim 23), for the first fiber of each span.

Therefore, a *prima facie* case of obviousness has not been established and, even if it was established, it has been rebutted by Applicants' evidence of unexpected results. Independent claim 23 should therefore be allowable. Independent claims 42-44, while of different scope, recite elements similar to those in independent claim 23. Claims 42-44 should therefore also be allowable. Dependent claims 24-41 should be allowable at least due to their respective dependence from base claim 23. Applicants therefore request reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejection.

**Conclusion:**

In view of the foregoing, Applicants request reconsideration of the application and withdrawal of the rejections. Pending claims 23-44 are in condition for allowance. Applicants therefore request a favorable action.



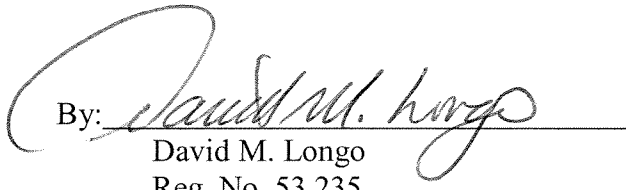
If there are any remaining issues or questions, Applicants request the Examiner telephone the undersigned representative to discuss them.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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